

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: Galactic
 Total Time Requested: 49 Hours
 Minimum Useful Time: 42 hr

Proposal Title: Observations of the Relativistic Binary Pulsar B1913+16

ABSTRACT:

We request 14 days of 19-hour LST time to observe the first binary pulsar B1913+16 for the first time since 2012.8. From these data, we will measure times-of-arrival (TOAs), pulse profiles, and HI spectra. The TOAs will be used for refining our measurements of relativistic parameters including gravitational-radiation-induced orbital decay and the Shapiro gravitational propagation delay, thereby further improving our tests of general relativity. The profiles will be useful in modeling the pulsar emission beam in two dimensions, as relativistic geodetic spin-axis precession slowly sweeps our line of sight up and down the pulsar. The HI spectra will be used for kinematic distance determination. These observations, the first in 3.5 years, are crucial in maintaining our phase lock on the pulsar. In addition, some spin-precession models suggest that within a few years, the pulsar beam may precess away from us and disappear.

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Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

Instrument Setup

430 G L-wide S-low

Atmospheric Observation Instruments:

Special Equipment or setup: WAPP and PUPPI backends

RFI Considerations

Frequency Ranges Planned

420-440 MHz for the two day session

2300-2700 MHz for the two day session

1120-1220 MHz for 14-day session

1320-1620 MHz for 14-day session.

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.